

Cumulative Impacts - Range of Inflows to the Salton Sea



November 30, 2004

Projecting "Baseline" Conditions in Year 2078

⌘ **No Action Alternative Conditions based on "Relative Certainty"**

- ☑ Existing Facilities and Policies

- ☑ Projects under Design or Construction

⌘ **Cumulative Impact Conditions based upon wider range of "What ifs"**

How Can "Cumulative Impacts Condition" be used in PEIR?

⌘ **Traditional Cumulative Impact Analysis**

- ☑ Proposed Project is considered with a range of possible projects and policies
- ☑ Identify issues to be addressed by future EIRs

⌘ **Proposed Cumulative Impact Analysis**

- ☑ Use range of Cumulative Impact Conditions during evaluation of alternatives to develop a project with flexibility/sustainability over the 75 year study period

Potential Issues for Salton Sea Cumulative Impact Conditions

- ⌘ **Inflows to the Salton Sea**
- ⌘ **Land Use and socio-economic conditions at the Salton Sea and in the watershed**
- ⌘ **Air Quality and associated regulations for the Salton Sea watershed and adjacent air basins**
- ⌘ **Habitat changes to areas outside of Salton Sea watershed for migratory birds**
- ⌘ **Others.....**

Initial Focus on Range of Inflows

⌘ Inflows to the Salton Sea

- ⌘ Land Use and socio-economic conditions at the Salton Sea and in the watershed
- ⌘ Air Quality and associated regulations for the Salton Sea watershed and adjacent air basins
- ⌘ Habitat changes to areas outside of Salton Sea watershed for migratory birds
- ⌘ Others.....

All of the Salton Sea Inflows are Subject to Variability

- ⌘ **Rainfall on the Salton Sea**
- ⌘ **Flows from Mexico**
- ⌘ **Tailwater and tilewater from Imperial Irrigation District**
- ⌘ **Tailwater and tilewater from Coachella Valley Water District**
- ⌘ **Groundwater gains/losses from Coachella Valley Water District**
- ⌘ **Unmeasured inflows and seepage**

Changes in Inflows Have and Will Continue to Occur

INFLOW SOURCES

⌘ Rainfall and unmeasured inflows at Salton Sea

⌘ Wastewater flows from Mexicali

⌘ Tailwater/tilewater flows from irrigation in Mexico

POTENTIAL CHANGES

⌘ Average rainfall less than 4 inches/year

⌘ Wastewater treatment plant will divert +20,000 acre-feet from Salton Sea

⌘ Availability of Colorado River water and groundwater

More Inflow Changes

INFLOW SOURCES

⌘ Tailwater and tilewater
from from Imperial
Irrigation District

⌘ Tailwater and tilewater
from Coachella Valley
Water District

POTENTIAL CHANGES

⌘ Agricultural Practices

⌘ Cropping patterns

⌘ Local rainfall

⌘ Conservation methods

⌘ Future responses to
water quality regs
(TMDLS)

⌘ Agricultural Practices

⌘ Similar to Imperial
Irrigation District

⌘ Groundwater
management

No Action Alternative includes
QSA Future Conditions Minus
200,000 acre-feet due to:

⌘ Reductions in flows from Mexico

**☒ Conveyance of treated wastewater flows
away from Salton Sea**

**☒ Changes in water supply projections: surplus
Colorado River Flows not available for long-
term**

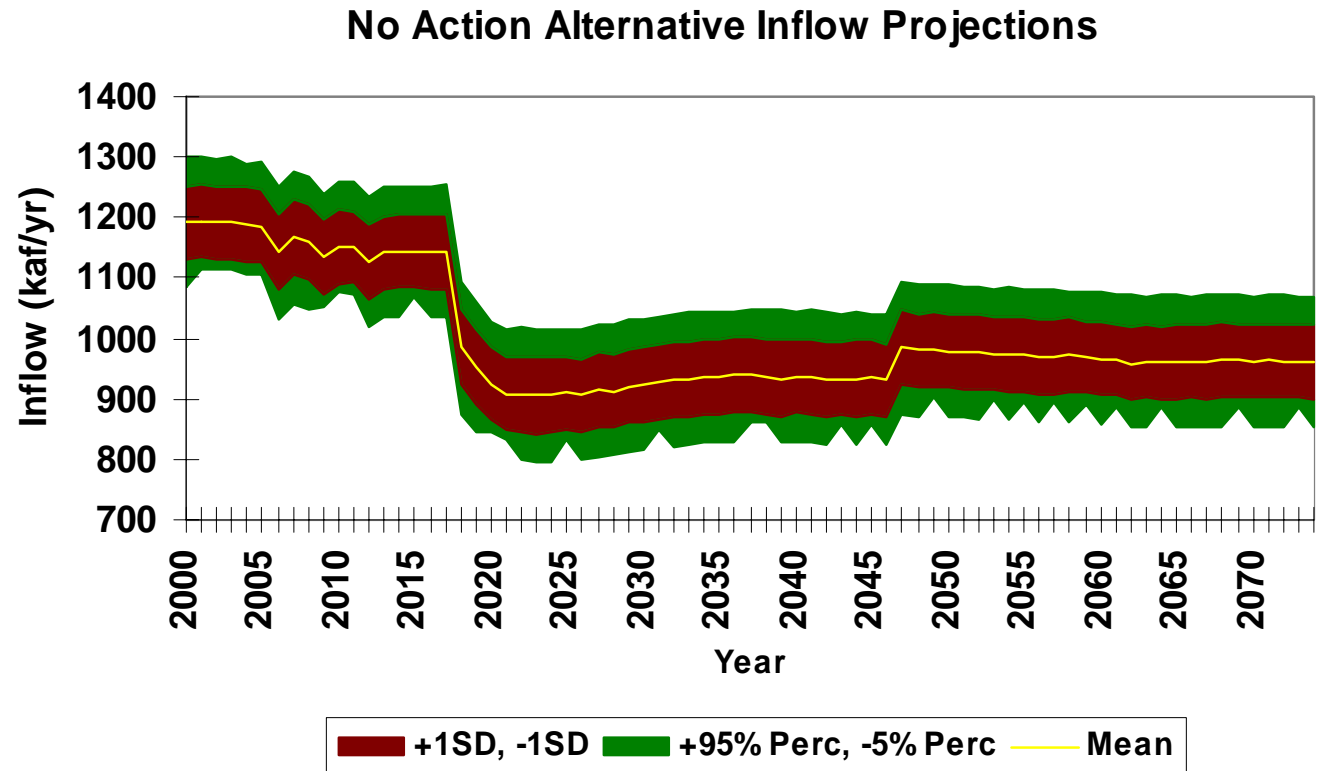
☒ Diversions by Mexicali power plants

**⌘ Increase in groundwater seepage from
Coachella Valley**

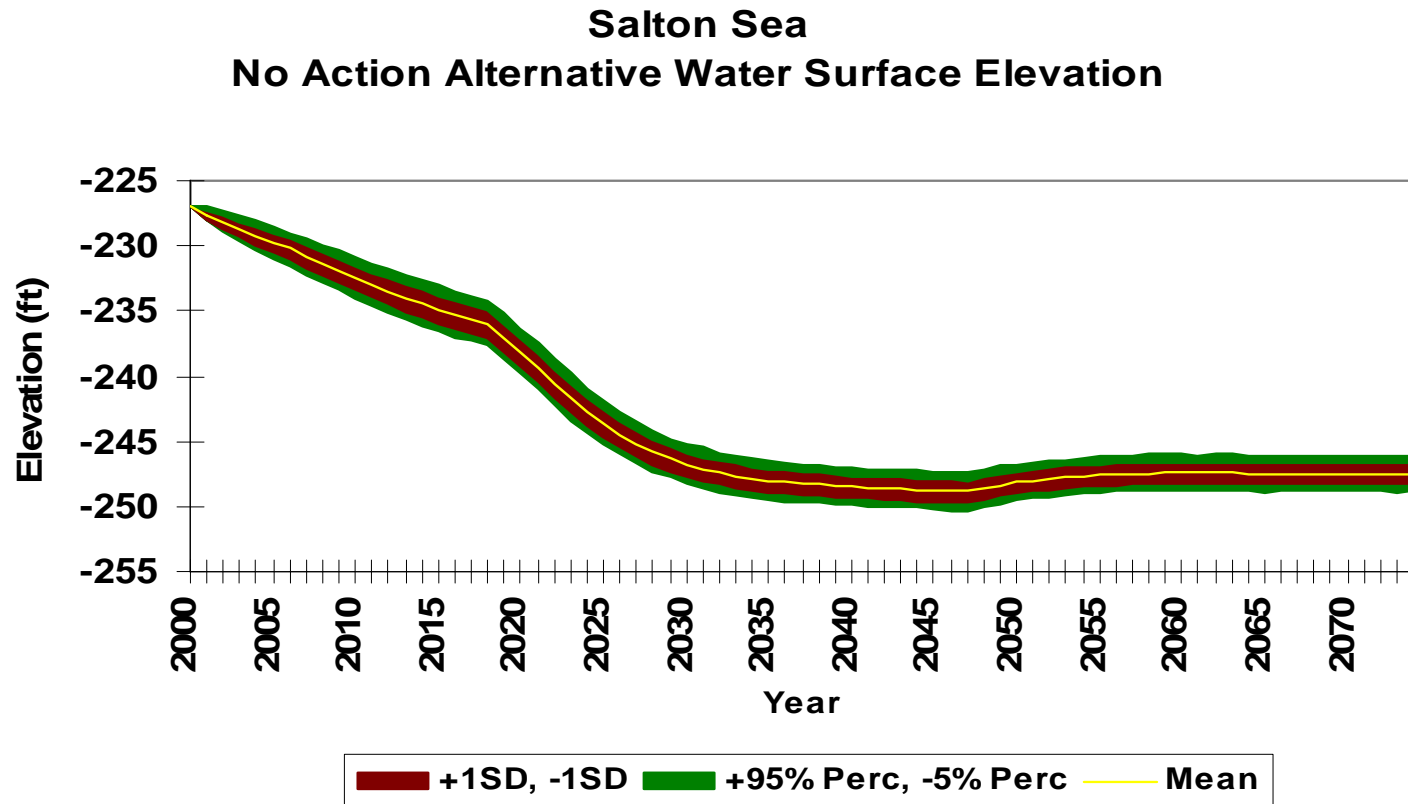
Range of Inflows for No Action Alternative (using SSAM)

2004 = 1,193,000 acre-feet (per model)

2078 = 962,000 acre-feet (per model for NAA)



Range of Inflows Causes Range of Elevation Projections



Other Potential Inflow Increases

⌘ High precipitation and local runoff events

- ☒ Over 20,000 acre-feet/1-inch of rainfall

⌘ Responses to high Colorado River flows

- ☒ Example: November request by USBR to reduce Colorado River flows was for 24,000 acre-feet

- ☒ Increased deliveries to Mexico: up to 50,000 acre-feet

⌘ Flows changes for groundwater management - ?

Other Potential Inflow Reductions

⌘ Flows from Mexico

- ☒ Reduced groundwater near All American Canal
 - ☒ Reduced drainage flows by 15,000 acre-feet
- ☒ Future diversions by new industrial users - ??

⌘ Response to Total Maximum Daily Loads

- ☒ Could reduce inflows from tilewater - ? More??

⌘ Response to extreme climate variations on Lower Colorado River

- ☒ No change foreseen unless extreme event
- ☒ Response to multiple consecutive drought years & limited carryover volume???

Potential Colorado River Flow Variations (calculated @ Lake Powell)

⌘ Long-Term Average

☒ 16,100,000 acre-feet = 1905-1922 average

☒ 12,400,000 acre-feet = 1895-2003 average

⌘ Lowest Five-Year Average

☒ 7,110,000 acre-feet = 1999-2003

☒ 8,840,000 acre-feet = 1590-1594 (tree-ring study)

⌘ Lowest Ten-Year Average

☒ 9,900,000 acre-feet = 1995-2004

☒ 9,710,000 acre-feet = 1584-1593 (tree-ring study)

⌘ Lowest Year in 2002 = 3,800,000 acre-feet

⌘ Highest Year in 1984 = 22,200,000 acre-feet

Potential Extreme Bookends

⌘ Potential Increases

☒ **20,000 - 100,000++ acre-feet in extremely wet years with large storms at Salton Sea, surplus flows to Mexico, & USBR requests**

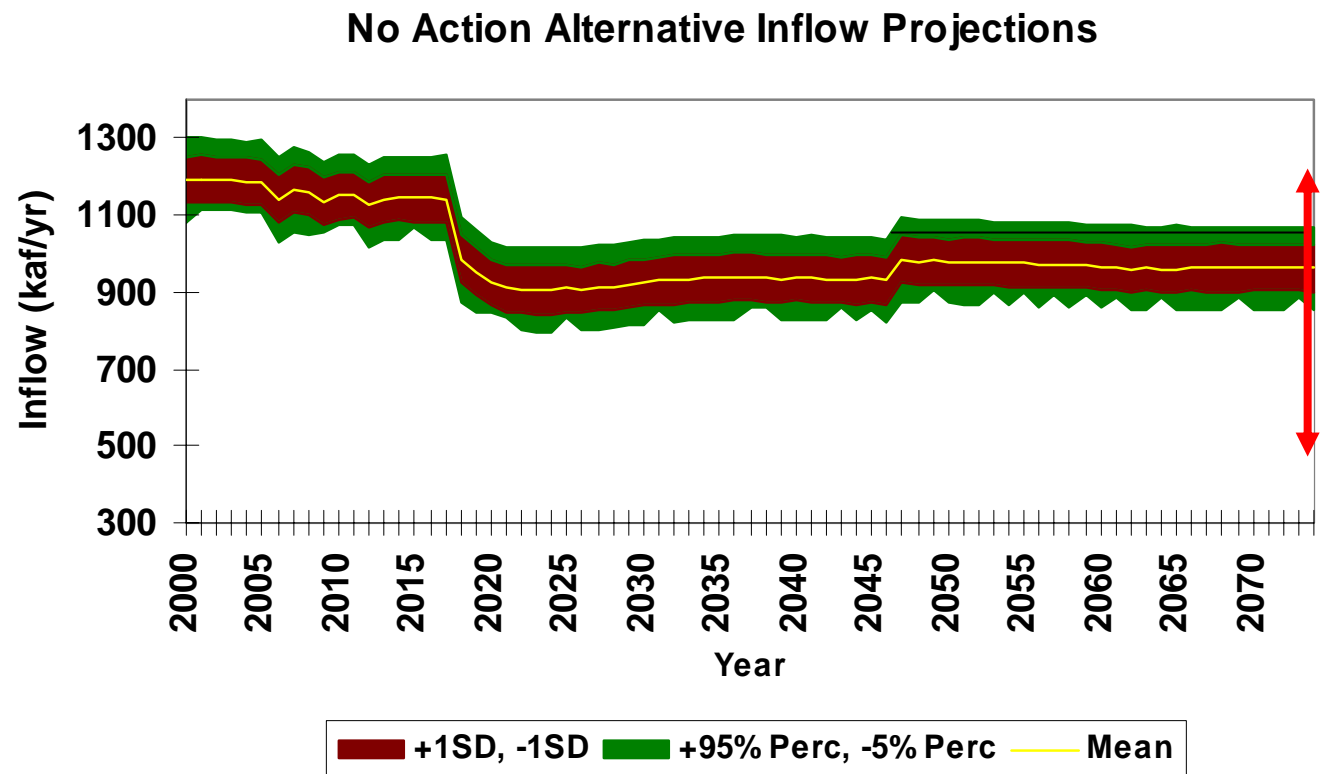
⌘ Potential Decreases

☒ **15,000 - 400,000++ acre-feet in extremely dry years with little or no carryover storage on Colorado River**

Inflows for Cumulative Impacts could be a Wide Range

In 2078:

Flows may range from 1,100,000 to less than 500,000 acre-feet



Potential Inflow Assumptions to Develop Flexible Alternatives

- ⌘ **Develop "bookends" around the No Action Alternative assumptions for 2078**
 - ☒ **No Action Alternative = 962,000 acre-feet**
 - ☒ **Range of Cumulative Impact inflows could be 500,000 to 1,100,000 acre-feet**
- ⌘ **Evaluation of "bookends" to determine sensitivity of impact analysis**
- ⌘ **Range of results used to determine flexibility/sustainability of alternatives**

Information Needed from the Advisory Committee

⌘ What other resources need to be considered in this manner?

☒ Air Quality

☒ Extreme high and low quality events

☒ Wildlife Use

☒ Annual use below/above average use

☒ Land Use

☒ Higher/Lower population projections for Imperial and Riverside counties

☒ Others?